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includes improving adhesion between the first layer and the second layer. Page 5 of the Office Action alleges that Lim discloses every limitation of claim 1 except for improving adhesion. Applicant traverses.

Applicant asserts that Lim fails to disclose or suggest the claimed relationship between the interface layer and the first capacitor plate. Applicant notes, as set forth in claim 1, that such relationship improves adhesion between the first capacitor plate and the dielectric layer compared to adhesion otherwise occurring in the absence of the interface layer. By comparison, the composition of transition layer 130 described in Lim does not appear to have any relationship whatever with the composition of lower electrode 840. Instead, the composition of transition layer 130 is instead linked to the composition of lower material layer 110 forming a part of multi-layer film 100. Lim does not disclose or suggest lower material layer 110 being a capacitor plate. Instead, it merely forms a part of multi-layer film 100 that is formed on lower electrode 840. Thus, it appears that Kim fails to appreciate the advantage of improving adhesion between the first plate and the dielectric layer of a capacitor as set forth in claim 1. Instead, Lim is merely concerned with the interaction parameters between lower material layer 110 and upper material layer 150 that form part of multi-layer film 100. Lim does not in any way link the composition of transition layer 130 with lower electrode 840. At least for such reason, Lim fails to disclose or suggest every limitation set forth in claim 1. Claims 2-7 and 40-45 depend from claim 1 and are patentable at least for such reason as well as for the additional limitations of such claims not disclosed or suggested.

As may be appreciated from the above discussion regarding the deficiencies of Lim as applied to claim 1, Applicant asserts that amended claims 8 and 13 are patentable over Lim. Claims 9-12 depend from claim 8 and claims 14-17 depend from

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claim 13 and are patentable at least for such reason as well as for the additional limitations of such claims not disclosed or suggested.

Amended claim 18 sets forth a capacitor interface forming method that includes, among other features, forming a capacitor plate containing a first metal, chemisorbing a first unsaturated interface layer including a first metal on the capacitor plate, and chemisorbing a second unsaturated interface layer at least on the capacitor plate in areas not saturated by the first interface layer. The second interface layer includes a second metal different from the first metal. The method includes forming a dielectric layer containing the second metal on the first and second intermixed interface layers. Even though claim 18 does not expressly set forth improving adhesion, Applicant asserts that claim 18 is also patentable over Lim, as may appreciated from the discussion above regarding the deficiencies of Lim as applied to claim 1. Claims 19-21 depend from claim 18 and are patentable at least for such reason as well as for the additional limitations of such claims not disclosed or suggested.

Amended claim 46 sets forth an electronic device interface forming method that includes, among other features, forming a conductive first electronic device layer containing a first chemical element selected from the group consisting of Pt and Ru and chemisorbing on the first layer an interface layer including at least two monolayers. The interface layer contains the first chemical element intermixed with a second chemical element different from the first chemical element to provide a composition gradient across a thickness of the interface layer. The method includes forming an insulative second electronic device layer containing the second chemical element on the interface layer. As may be appreciated from the discussion above regarding the deficiencies of Lim as applied to claim 1, such reference fails to disclose every limitation set forth in

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claim 46. Specifically, Lim fails to disclose or suggest a compositional relationship between an interface layer and a conductive first electronic device layer containing Pt or Ru that the interface layer contacts. Thus, claim 46 is patentable over Lim.

As previously discussed above regarding the deficiencies of Lim as applied to amended claim 1, Lim fails to disclose or suggest any relationship between the composition of transition layer 130 and the composition of lower electrode 840. Instead, Lim is preoccupied with a compositional relationship between transition layer 130 and lower material layer 110. Applicant recognizes that lower material layer 110 forms a part of multi-layer film 100, however, the composition of lower material layer 110 and all other portions of multi-layer film 100 appear to be completely independent of the composition of lower electrode 840.

Accordingly, it is not seen how Lim can be considered to disclose or suggest the claimed interface layer in contact with the conductive first layer of claim 46 where the first layer contains a first chemical element and the interface also contains the first chemical element. Transition layer 130 does not contact lower electrode 840. Also, first material layer 110 that does contact lower electrode 840 does not share any chemical elements in common with lower electrode 840. At least for the indicated reasons, claim 46 is patentable over Lim. Claims 47-54 depend from claim 46 and are patentable at least for such reason as well as for the additional limitations of such claims not disclosed or suggested.


In keeping with the assertions herein, Applicant asserts that claims 1-21 and 40-54 are patentable over Lim.

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Applicant herein establishes adequate reasons supporting patentability of claims 1-21 and 40-54 and request allowance of such claims in the next Office Action.

Respectfully submitted,

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